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Nudge management: applying behavioural science to increase knowledge worker productivity

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Abstract

Knowledge worker productivity is essential for competitive strength in the digital century. Small interventions based on insights from behavioural science makes it possible for knowledge workers to be more productive. In this *point of view* article, we outline and discuss a new management style which we label *nudge management*.

Keywords: Knowledge worker, Productivity, Management control, Nudge theory, Motivation, Choice architecture, Behavioural science, Behavioural economics

Introduction: The challenge of knowledge worker productivity

Peter Drucker, one of the leading management scholars of the last 50 years, suggested that knowledge worker productivity—as opposed to blue collar worker productivity—is the biggest challenge of the 21st century.[1] Looking at the current situation of many private companies, hardly anyone would disagree with Drucker's prediction: the productivity of knowledge worker has become the major managerial battlefield and this even applies to companies in the manufacturing sector. Importantly, managers not merely aim to increase the cost and capital efficiency but increasingly focus on strengthening the potential for further innovation and digitalization. Together these are the major future levers of value creation for customers, shareholders and employees. Managers and companies that succeed will stay competitive and grow profitably, others that do not will quickly cease to exist.[2]

A broadly similar situation was in place at the beginning of the industrial century, when Frederick Taylor applied the now well-known *scientific* approach to management which enabled him to increase productivity at Ford Motors to hitherto unimaginable levels.[3] Is a new kind of scientific management approach also the solution for competitive advantage in the the digital century?

Nudge management: The new scientific management approach

Rather than adopting Taylor's classic scientific approach—i.e. treating workers functionally as performing simplified rules in a streamlined process—we prefer to draw on human science, in particular behavioural and psychological studies, to increase knowledge worker productivity. Roughly speaking, *nudge management* is a management approach

that applies insights from behavioural science to design *organizational contexts* so to optimize fast thinking and unconscious behaviour of employees in line with the objectives of the organization.

In order to explain this initial characterisation and motivate our general approach, let us briefly consider one of the most successful companies: Google. A number of recent popular books written by Google insiders have covered and analysed (some of) the principles behind Google's success.[4] Here we find a very distinctive approach to knowledge worker management. It is neither the introduction of additional strict rules, nor the very opposite, i.e. a laissez-faire approach often associated with agile management, TEAL or holocratic organisation[5], that best characterises Google. Rather, while the company has a very tight management control system, it is not "controlling" in the traditional way. The management system at Google controls the *choice architecture*[6] of its employees: through simple nudges and re-setting of default rules the productivity, decision-making, and perceived freedom of its knowledge workers is improved. Importantly, the approach is holistic and considers various aspects that in a more classical approach would seem irrelevant. So, for example, office architecture is adopted so to suit and improve the sharing of information and collaboration. Food choices in the cafeteria are laid out to increase healthy eating, and thus the health and productivity of its work force. These type of examples are classic examples deriving from a nudge management approach. In the next section we briefly outline the basic theory behind it.

Basic insight: undermanaged fast thinking

Nudge management draws on recent developments in behavioural economics which in turn were inspired by the so-called *dual process* theory of mind. The underlying idea—made popular in (Kahneman 2011)—is that humans have, broadly speaking, developed two *thinking* systems. The so-called *system 1* is the more automated system, which contains much of our intuitive and affective thinking, while *system 2* is usually characterised by our reflective and logical capacities.[7] The details behind the theory and the relevant interaction of the two thinking systems need not concern us here. But, roughly speaking, we may say, that most management styles have so far focused mainly on managing the logical reflective side of thinking, which admittedly, seems the important one. Our approach is not to replace whatever management style is used to strengthen knowledge workers in that area. Rather, nudge management aims to harness the strength and ability of the automated system, while making sure that it is used in those contexts where it reliably provides fast and broadly correct decisions. Hence, we think managers can avail themselves of a further resource that can help improve performance and efficiency of knowledge workers. Additionally, knowing about how the human mind tends to work, in particular, where it usually succeeds and where it easily fails in its automated system, will also motivate a further aspect of this management approach: the use of nudges, which gives it its name.

Nudge theory itself was popularized in the influential book by (Sunstein and Thaler 2009) bearing that name. Their aim was to show how by adjusting the basic choice architecture policy makers can improve an individual's decision-making (often the automated one) with regards to health, wealth, and happiness, while preserving the libertarian ideal of freedom of choice. Nudge management is born out of the idea that some of the basic insights of nudge theory can be adapted and implemented in an organizational setting under a different "social contract", i.e. that of contributing to the corperation's

objectives.[8] In what follows, we will present a number of examples that will show how nudge management techniques can be applied in practice.

Implementation: putting ideas into practice

Improving efficiency of meetings

Knowledge workers spend a substantial time in meetings. In many cases, up to 50 percent of their working hours is spent on sharing information in meeting rooms and virtual conferences. All too often the ratio of output per hour spent is perceived to be poor. One possible reason for an increase in scheduled meetings might be due to what psychologist call the *information bias*—the tendency to seek more and more information even though it won't affect action. Particularly in larger organizations and through the availability of "big data" such phenomenon might become even more widespread.[9]

A nudge manager may approach this problem of "meeting efficiency" by looking at ways to "rebias" knowledge workers. A powerful tool here is to adjust the default assumption of meeting times. Most meetings are organised using business software where the default duration for a meeting is often set to 60 mins. Changing the default to 30 mins and creating an expectation or rather a new social norm that this is the "standard" time for meetings can be a very powerful and simple strategy to increase efficiency. After all, soon enough a 45 mins meeting will be perceived as a long meeting, while previously when 60 mins was the default, it was considered to be short. Changing the default in larger corporations could very easily result in a 5 percent decrease in time spent in meetings for each employee, adding up to thousands of working hours in larger companies over the year.

Improving efficiency in planning

One major problem in the strategic renewal of bigger organizations is the poor execution of long term planning. Psychologists labelled this phenomenon the "planning fallacy":[10] a tendency to underestimate, often due to the so-called optimism bias, the time needed to complete a future task. Psychologists currently debate the exact reasons for why this phenomenon is so widespread. We also find in large organisations not merely a tendency to underestimate the time needed to complete a task, but also an increase in the number of strategic plans (which itself is a costly exercise). The following case is indicative of the current state of affairs: we recently assessed a large German industrial company and found that there were more than 100 strategic initiatives in an engineering department with around 800 employees. Each initiative consisted of many activities that were defined in project charters. However, as is to be expected, the success rate of these initiatives was exceptionally low and unsurprisingly, given our knowledge of the planning fallacy, the required resources to succeed were consistently underestimated.

A nudge manager could approach the situation by introducing so-called implementation intentions.[11] Studies (e.g. (Gollwitzer 1999)) have shown that the use of implementation intentions can result in a more likely attainment of the relevant goals, as well as to changes in behaviour with respect to future planning. The idea is that employees plan and openly communicate their key objectives, thereby committing themselves to these plans in front of their peers. Additionally, these commitments are made on a quarterly basis and individuals provide metrics and targets to measure their progress. The quarterly frequency is much higher than that of a typical target systems with an annual rhythm. Stating

publicly ones plans helps to reduce overconfidence and so can help to reduce a widespread optimism bias which is all to often exacerbated in most company climates. After all, no-ones wants to be that negative employee who accuses others of being unrealistic.

Improving task efficiency

Unplanned interruptions are among the most effective productivity killers for knowledge workers. Working in an office environment with constant distractions makes it difficult for many knowledge workers to achieve high productivity, and practically impossible to engage in so-called *deep work*.[12] From our own experience consulting for numerous companies, knowledge workers crave longer "distraction-free" time periods, so as to be able to finalise certain task that require extended periods of concentrated work. Once again a nudge manager can approach this by challenging default rules or introducing new default rules. For example, one can introduce a "no-meeting" day—adopted already by numerous organizations which has lead to significant improvements in productivity[13]. Again this can easily be implement as a default rule in the relevant business software. No meeting days can also be combined with a work from home day which in turn encourages self-management of knowledge workers.[14]

Another nudge that may help to create a less distracting environment for knowledge workers is to show employees consequences of their own past choices. Using certain software, employees can be made aware of their own distracting and often unconscious actions: constant email checking, web browsing, social media, etc. More subtle ways to nudge knowledge workers is to change the default setting in the email software and turn off the sound effects for incoming mail (itself a nudge) or set the synchronization frequency of the email inbox to once per hour. Nudge managers can thus help to increase productivity by allowing workers to engage more deeply with the relevant task while also providing further opportunities to improve their own self-management.

Efficiency of knowledge sharing

Knowledge sharing is key for success in innovation for most companies. Individuals can no longer invent the "next big thing" if they are simply surrounded by others with similar assumptions and background knowledge. Innovation often requires a new mix of ideas, interaction between different research areas, and a diverse and open attitude of knowledge workers. After all, the vast majority of innovations don't simply happen sitting alone in an office. How does a nudge manager ensure that knowledge workers manage to interact fruitfully? Here let us return to our motivating case study: Google. So called "micro kitchens" were introduced by Google to increase knowledge transfer amongst knowledge workers in an easy and pleasant way. Workers from different departments meet in the company restaurants and coffee corners. Naturally, the areas are architecturally arranged to create the best atmosphere to engage in discussion and exchanging ideas. A similar approach to knowledge transfer has been adopted by one of the largest car suppliers we have been consulting—it is a company with one of the most patents per year in its field.

Conclusions

Nudge management offers a new exciting opportunity to improve knowledge worker productivity by focusing on and refining the organizational context that influence fast

thinking to improve efficiency, effectiveness, and motivation. The advantages of nudge management, in contrast to many other change management approaches, are evident: nudges are usually not very intrusive, easily scalable, and employees are not forced to make extensive changes to their working habits. Of course, for most companies, it will be difficult to easily measure the effectiveness of nudges and new default rules. However, herein lies the great opportunity of digitalisation, big data, and an evidence-based approach to management: through continuous collection and analysis of data, companies will soon be able to assess quickly which nudges tend to work for which knowledge worker, and which ones don't—ultimately, leading to more personalised nudges and default rules individually tailored to each knowledge worker.[15] From this perspective, then, it is not much of a surprise that a nudge management approach is already a core aspect of one of the biggest big data company.

Endnotes

[1] Compare (Drucker 1999).

[2] Compare here, for example, (Brynjolfsson and McAfee 2011).

[3] Compare the classic (Taylor 1911).

[4] Compare (Bock 2015) and (Schmidt and Rosenberg 2015).

[5] See here in particular (Laloux 2014).

[6] This phrase was originally coined by (Sunstein and Thaler 2009).

[7] Needless to say research in this area is wide-ranging. (Kahneman 2011) offers an accessible introduction, for a more scientific overview of recent studies, see e.g. (Evans JStBT 2011).

[8] The ethical implications of using nudges are thus very different in these two contexts. For an excellent discussion of some of the issues relating to Sunstein and Thaler's original approach, compare (Sunstein 2016).

[9] For further discussion, compare (Håkonsson and Carroll 2016).

[10] Compare the classic paper by (Kahneman and Tversky 1979).

[11] This is a technique used by Google to reduce the planning fallacy. Note also, that implementation intentions have helped to debias people in other areas (e.g. racial prejudice). See for example (Kandola 2009) and (Mendoza et al. 2010).

[12] Compare here (Newport 2016).

[13] For an indicative example see: http://www.forbes.com/sites/entrepreneursorganization/2015/06/24/how-to-be-super-productive-on-a-no-meeting-day

[14] How nudge management can be applied in the context of self-management is discussed in (Freibichler et al. 2017).

[15] See for discussion of the idea of personalised default rules in a different context (Sunstein 2013).

Authors' contributions
The paper was designed, developed, and written in collaboration and so authors are equal contributors. Both authors read and approved the final manuscript.

Competing interests
The authors declare that they have no competing interests.

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